CLAIMS:

1. Linking unit (100) for generating linking information L indicating components of two consecutive extended segments sp and sc which partially overlap and which may be linked together in order to form a sinusoidal track, the segments sp and sc approximating consecutive segments of a sinusoidal audio or speech signal s, the linking unit comprising:

- a calculating unit (120) for generating a similarity matrix S(m,n) in response to received sinusoidal code data including information about the amplitudes and the frequencies of M components x_m with m=1...M of the extended previous segment sp and of N components y_n with n=1...N of the extended current segment sc, wherein the values of said similarity matrix represent the similarity between the m'th component x_m of said extended previous segment sp and the n'th component y_n of said extended current segment sc for m=1...M and n=1...N; and
- an evaluating unit (140) for receiving and evaluating said similarity matrix S(m,n) in order to generate said linking information L by selecting those pairs of components (m,n) the similarity of which is maximal at least within the an overlapping region;

characterised in that

- the sinusoidal code data (Dp, Dc) is enlarged by further comprising information about the phase of at least some of the M components x_m and at least some of the N components y_n;
- the calculating unit (120) is adapted to calculate the similarity matrix S(m,n) by additionally evaluating the phase consistency between the m'th component x_m of the extended previous segment sp and the n'th component y_n of the extended current segment sc.

2. The linking unit according to claim 1, characterised in that the calculating unit comprises:

- a first pattern generating unit (122) for generating said M components $x_m(t)$ with m=1...M of the extended previous segment sp in response to the previous segment's enlarged sinusoidal code data (Dp);

- a second pattern generating unit (124) for generating said N components $y_n(t)$ with n=1...N of the extended current segment sc in response to the current segment's enlarged sinusoidal code data (Dc); and
- a calculation module (126) for calculating the similarity matrix S(m,n) on the basis of said received M components xm(t) and of said received N components $y_n(t)$ according to a predefined similarity measure.

3. The linking unit according to claim 2, characterised in that the calculating module (126) is adapted to calculate the overall similarity matrix S(m,n) according to:

$S(m,n)=S_1(m,n)S_2(m,n)$

wherein the first similarity matrix $S_1(m,n)$ represents the similarity in shape and the second similarity matrix $S_2(m,n)$ represents the similarity in amplitude or energy between the components m and n.

4. The linking unit according to claim 3, characterised in that the similarity $S_1(m,n)$ is defined according to:

$$S_1(m,n)=\begin{cases} 1-\left|\rho_{m,n}-1\right|/D_1, & if\ \left|\rho_{m,n}-1\right|<D_1, \\ 0, & elsewhere \end{cases}$$

with 0< D1 < 1

and with

$$\rho_{m,n}=\frac{\sum_t w(t)\ x_m(t)\ y_n^*(t)}{\sqrt{E_{xm}\ E_{yn}}}$$

wherein:

$\rho_{m,n}$: is the similarity measure being a cross-correlation coefficient representing the similarity in shape between components $x_m(t)$ and $y_n(t)$;

w(t) : is a window function;

$y^*_m(t)$: is the complex-conjugate component $y_m(t)$;

E_{xm} : is the energy in the signal x_m with: $E_{xm}=\sum_t w(t)\ x_m(t)\ x_m^*(t)$;

E_{yn} : is the energy in the signal y_n with: $E_{yn}=\sum_t w(t)\ y_n(t)\ y_n^*(t)$.

5. The linking unit according to claim 4, characterised in that the second similarity $S_2(m,n)$ is defined according to:

$$S_2(m,n)=\begin{cases}1-(1-R_{m,n})/D_2, & if\ (1-R_{m,n})<D_2,\\ 0, & elsewhere\end{cases}$$

with $0 < D2 < 1$

and wherein

$$R_{m,n}=\min\left\{\frac{E_{xm}}{E_{yn}},\frac{E_{yn}}{E_{xm}}\right\}$$

6. The linking unit according to claim 3, characterised in that the calculating module (126) is adapted to calculate the first similarity matrix $S_1(m,n)$ according to:

$$S_1(m.n)=\begin{cases}1-\left|\frac{x_m(t_0)}{y_m(t_0)}-1\right|/D_3, & if\left|\frac{x_m(t_0)}{y_n(t_0)}-1\right|<D_3\\ 0, & elsewhere\end{cases}$$

with $0 < D3 < 1$.

7. The linking unit according to claim 6, characterised in that the calculating module (126) is adapted to calculate the second similarity matrix $S_2(m,n)$ according to:

$$S_2(m,n)=\begin{cases}1-\left|\frac{x_m(t_0+1)}{x_m(t_0)}\frac{y_n(t_0)}{y_n(t_0+1)}-1\right|/D_4, & if\left|\frac{x_m(t_0+1)}{x_m(t_0)}\frac{y_n(t_0)}{y_n(t_0+1)}-1\right|<D_4\\ 0, & elsewhere\end{cases}$$

with $0 < D4 < 1$.

8. Parametric encoder (400) for encoding an audio- and/or speech signal s into a datastream including sinusoidal code data and linking information L, the encoder comprising:

- a segmentation unit (410) for segmenting said signal s into at least a previous segment sp' and a consecutive partially overlapping current segment sc';
- a sinusoidal estimating unit (420) for generating said sinusoidal code data in the form of frequency and amplitude data of M components x_m with m=1...M of an extended previous segment sp approximating said segment sp' and of N components y_n with n=1...N of an extended current segment sc approximating said segment sc';
- a calculating unit (120) for generating a similarity matrix S(m,n) in response to said received sinusoidal code data wherein the values of said similarity matrix represent the similarity between the m'th component x_m of said extended previous segment sp and the n'th component y_n of said consecutive extended current segment sc for m=1...M and n=1...N;
- an evaluating unit (140) for receiving and evaluating said similarity matrix S(m,n) in order to generate said linking information L indicating those pairs of components m,n the similarity of which is maximal;
- an arranging unit (430) for generating the datastream representing the original audio- or speech signal by appropriately arranging said amplitude, frequency and linking information;

characterised in that

- the sinusoidal code data estimating unit (420) is adapted to futher generate information about the phase of at least some of the M components x_m and of at least some of the N components y_n; and
- the calculation unit (120) is adapted to calculate the similarity matrix S(m,n) by additionally considering the phase consistency between the m'th component x_m of the extended previous segment sp and the n'th component y_n of the extended current segment sc.

9. Method for generating linking information L indicating components of consecutive partially overlapping extended segments sp and sc which may be linked together in order to form a sinusoidal track, the segments sp and sc approximating consecutive segments of a sinusoidal audio-/or speech signal s, the method comprising the steps of:

- providing sinusoidal code data including information about the amplitudes and the frequencies of M components x_m with m=1...M of the extended previous segment sp and of N components y_n with n=1...N of the extended current segment sc;

- calculating the similarity matrix S(m,n) according to a predetermined similarity measure wherein the similarity matrix represents the similarity between the m'th component x_m of said extended previous segment sp and the n'th component y_n of said extended current segment sc for m=1...M and n=1...N; and
- evaluating said similarity matrix S(m,n) in order to generate said linking information L by selecting those pairs of components m and n the similarity of which is maximal;

characterised in that

- the step of providing the sinusoidal code data further includes the provision of information about the phase of at least some of the M components x_m and of at least some of the N components y_n; and
- the similarity matrix S(m,n) is calculated by additionally considering the phase consistency between the n'th component y_n of the extended previous segment sp and the m'th component x_m of the extended current segment sc.